

**GUIDANCE FOR DEVELOPMENT OF SOFTWARE UTILIZING THE NND-
CNP NOTES ON NUTRIENTS
(Prepared 4/95)**

NUTRIENT DATABASE ISSUES:

INTRODUCTION

The NND-CNP files which comprise the CNP Nutrient Database are the NUTRIENT VALUES (NUTVAL) and NUTRIENT DESCRIPTION (NUTDES) files. The NUTVAL file contains the nutrient values for 100 gram portions of food identified by CNP codes or linked to CNP codes as Includes or Subcodes. The NUTDES file provides the descriptions for the nutrients identified by code in the NUTVAL file.

DATA FIELDS IN THE NUTRIENT VALUES (NUTVAL) FILE

The NUTVAL file is the largest file in the NND in terms of number of records, since for each CNP code there are fifteen records in the NUTVAL file, containing values for each of the nutrients in the NND. There are no “missing” or unknown nutrient values in the NND. A zero in the nutrient value field represents a true zero value. The attached Sample File Listing shows the format of this file.

CNP CODE identifies the food to which each nutrient values is attached.

NUTRIENT CODE identifies the nutrient for which each value is a measure. NUTRIENT CODE links to the NUTDES file for NUTRIENT DESCRIPTION. (Users do not need to see the nutrient code.)

NUTRIENT VALUE is the amount of the specific nutrient present in a 100 gram portion of the food(s) represented by that CNP code.

VALUE TYPE CODE is a data quality record code to identify how the nutrient value was derived. (Software developers do not need to use this field and end users do not need to see this field.)

NOTE: The order of nutrient records in this file is not meaningful; it is simply numerical by nutrient code. This is NOT a suggested order for NSMP software systems. See discussion at the end of this document for a suggestion about nutrient order on software displays and reports.

DATA FIELDS IN THE NUTRIENT DESCRIPTION (NUTDES) FILE

The attached File Listing displays the entire NUTDES file from CN1.

NUTRIENT CODE, the identification number for a nutrient, serves as the link between the nutrient values in the NUTVAL file and the text descriptions in the NUTDES file.

NUTRIENT DESCRIPTION is the “long” description of each nutrient.

NUTRIENT DESCRIPTION (ABBREVIATED) is a suggested abbreviation that software developers could use on their screen displays and reports. These are not required. But if an abbreviation of a full nutrient name is used, it must be recognizable by the general user.

NUTRIENT UNITS

Release 1 of the NND-CND did not contain information about the unit of measure attached to each nutrient value (calories, grams, milligrams, International Units, Retinol Equivalents, etc). A field for NUTRIENT UNIT has been added to the NUTDES file for Release 2 (expected June 1995). A listing of this file is attached.

OTHER CHANGES TO FILES WITH CN2

Three fields will be added to the file – DATE ADDED, LAST MODIFIED and STATUS. These fields identify data that has been added, changed or discontinued when a new release of the NND-CNP is distributed.

MISC NUTRIENT ANALYSIS SOFTWARE ISSUES:

SUGGESTED NUTRIENT ORDER FOR NSMP ANALYSIS

Unless there are specific reasons for doing otherwise, nutrients should be printed in the same order on all reports and screen displays. A suggested order (which groups the nutrients somewhat) is

1. calories
2. protein
3. vitamin A (RE)
4. vitamin A (IU)
5. vitamin C
6. iron
7. calcium
8. total fat
9. saturated fat
10. carbohydrates
11. dietary fiber
12. cholesterol
13. sodium
14. water
15. ash

In this grouping scheme, items 1 through 9 currently have USDA nutrient standards while items 10 through 15 do not.

CONVERSION OF DAILY REFERENCE VALUES (PERCENTAGE TO UNITS)

When a user enters a local food (often from a nutrition label), the system must accept entry of certain nutrient values in units or in percentage of Daily Reference Value (%DRV), and convert %DRV amounts to unit amounts. However, the system should not

allow inconsistent data to be entered in both fields for the same nutrients. For example, if the Vitamin C value of a food was entered as 100% of the DRV, the system should convert this to 60 mg; if the number 300 was later entered into the mg field for Vitamin C, the %DRV number should automatically change, so that the %DRV is kept equivalent to the mg of Vitamin V. The problem of inconsistent %DRV and unit values could be avoided by either always auto-converting the %DRV and amount nutrient fields, or by locking one field if there is data entered in the other.

The system must allow entry of %DRV values greater than 100% and perform accurate conversion of these %DRV values to nutrient amount. A food item may contain an amount of a nutrient that is more than the amount set as “Daily Reference Value” so the nutrient content of the food could be expressed on the food label as some number greater than 100% of the DRV.

VITAMIN A

When vitamin A nutrient data is entered for local food products, your computer program must allow the input of vitamin A values in retinol equivalents (RE) and international units (IU). The output of vitamin A values for nutrient analysis must be calculated and displayed for the user in retinol equivalents (RE); international units are optional.

As specified, the system should automatically convert between vitamin A values in IU's and RE's when only one value is entered. However, the automatic conversion between vitamin A in IU's and in RE's should be over-ridden if the user enters specific values for both units. In instances when the user only knows one value, it is appropriate that the system should do a “quick and dirty” conversion using the general factor of 1 RE-to-5 IU's. However, if values for both units are available, the user should be able to enter the individual, specific values without the system automatically converting the values for the other unit. The 1-to-5 factor is only a general, average conversion. In reality, the relationship between vitamin A value in IU's and the value in RE's differs between animal and plant foods. For an individual food, there may not be a 1 RE to 5 IU relationship. The system must allow the user to enter individual values, if known.

Sample File Listing

Printed: 4/25/95 NUTVAL FILE AS RELEASED WITH CN1 Page 1
 Data as of 1/31/94 (Nutval.r1, total records = 27, 105)

CNP code	Nutrient code	Nutrient value	Value type
-----	-----	-----	-----
1001	203	.850	1
1001	204	81.110	1
1001	205	.060	1
1001	207	2.110	1
1001	208	716.818	1
1001	255	15.870	1
1001	291	0.000	4
1001	301	23.500	1
1001	303	.160	1
1001	307	826.500	1
1001	318	3058.000	1
1001	392	754.000	1
1001	401	0.000	1
1001	601	218.900	1
1001	606	50.489	1
1002	203	.850	1
1002	204	81.110	1
1002	205	.060	1
1002	207	2.110	1
1002	208	716.818	1
1002	255	15.870	1
1002	291	0.000	4
1002	301	23.500	1
1002	303	.160	1
1002	307	826.500	1
1002	318	3058.000	1
1002	392	754.000	1
1002	401	0.000	1
1002	601	218.900	1
1002	606	50.489	1
1009	203	24.900	1
1009	204	33.140	1
1009	205	1.280	1
1009	207	3.930	1
1009	208	402.577	1
1009	255	36.750	1
1009	291	0.000	4
1009	301	721.300	1
1009	303	.680	1
1009	307	620.500	1
1009	318	1059.000	1
1009	392	303.000	1
1009	401	0.000	1
1009	601	104.900	1
1009	606	21.092	1

File Listing

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Data as of 1/31/94

NUTDES FILE AS RELEASED WITH CN1
(Nutdes.r1, total records = 15)

Page 1

Nutrient code	Nutrient description	Nutrient desc (abbreviated)
-----	-----	-----
203	Protein	Pro
204	Total Fat	Fat
205	Carbohydrate	Carb
207	Ash	Ash
208	Food Energy	FE
255	Moisture	Mois
291	TDF	TDF
301	Calcium	Ca
303	Iron	Fe
307	Sodium	Na
318	Vitamin A (IU)	A, IU
392	Vitamin A (RE)	A, RE
401	Vitamin C	VitC
601	Cholesterol	Chol
606	Saturated Fat	Sfat

File Listing

Printed: 4/20/95

NUTDES FILE TO BE RELEASED WITH CN2
(Nutdes2. r2, total records = 15)

Page 1

Nutrient code	Nutrient description	Nutrient desc (abbreviated)	Nutrient Unit
203	Protein	Pro	gm
204	Total Fat	Fat	gm
205	Carbohydrate	Carb	gm
207	Ash	Ash	gm
208	Food Energy	FE	kcal
255	Moisture	Mois	gm
291	Total Dietary Fiber	TDF	gm
301	Calcium	Ca	mg
303	Iron	Fe	mg
307	Sodium	Na	mg
318	Vitamin A (IU)	A, IU	IU
392	Vitamin A (RE)	A, RE	RE
401	Vitamin C	VitC	mg
601	Cholesterol	Chol	mg
606	Saturated Fat	Sfat	gm

Note: This document was originally distributed as part of a packet of seven guidance documents for software developers. The original was dated May 17, 1995 and signed by Ron Vogel. A copy of the original packet is included in the packet of materials sent to new software developers. The letter and packet are available upon request. This Word document was created on January 7, 2005.